# . (19) World Intellectual Property Organization International Bureau



## 

#### (43) International Publication Date 16 June 2005 (16.06.2005)

#### PCT

# (10) International Publication Number WO 2005/054906 A3

(51) International Patent Classification7:

G02B 27/14

(21) International Application Number:

PCT/US2004/039458

(22) International Filing Date:

24 November 2004 (24.11.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10/723,395 26 November 2003 (26.11.2003)

(71) Applicant (for all designated States except US): RUHLE COMPANIES, INC. [US/US]; 99 Wall Street, Vahalla, NY 10595 (US).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): RUHLE, Frank [US/US]; 7 Kyle Court, Park Ridge, NJ 07656 (US). WEISSMAN, Paul [US/US]; 12 Tamarix Drive, Brewster, NY 10509 (US).
- (74) Agents: HANDAL, Anthony, H. et al.; Kirkpatrick & Lockhart LLP, 599 Lexington Avenue, 31st Floor, New York, NY 10022-6030 (US).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

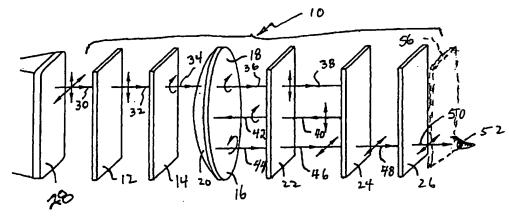
#### Published:

- with international search report
- with amended claims and statement

(88) Date of publication of the international search report: 15 September 2005

[Continued on next page]

(54) Title: IMPROVED COLLIMATING OPTICAL MEMBER FOR REAL WORLD SIMULATION



(57) Abstract: A collimating image-forming apparatus comprising a first linear polarizer is disclosed. A first quarter-wave plate (14) is disposed adjacent the first polarizer (12) and has its fast and slow axes at substantially 45° to the plane of polarization of the first polarizer. The apparatus further comprises a beam-splitting curved mirror (16) having a convex surface adjacent the first polarizer and facing towards the first quarter-wave plate, a second quarter-wave plate (22) adjacent the concave side of the curved mirror, the second quarter-wave plate having its fast and slow axes oriented with respect to the corresponding axes of the first quarter-wave plate at angles substantially equal to a first integral multiple of 90°, and a reflective-transmissive polarizing member, the second linear polarizer having its plane of polarization oriented with respect to the plane of polarization of the first linear polarizer at an angle substantially equal to a second integral multiple of 90°, both of the multiples being even or both being odd.

VO 2005/054906 A3

### 

Date of publication of the amended claims and statement: 24 November 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.